

CLAIMS

1. Curable resin compositions based on an
5 unsaturated prepolymer, a vinyl ether monomer
that can be cross-linked with it and one or more
other monomers, characterised in that the vinyl
ether monomer is a vinyl ether having a general
structure according to formula (I) or (II):
10
- $$\text{A-CH=CH-O-R} \quad (\text{I})$$
- or
- $$(\text{A-CH=CH-O})_n\text{-R}' \quad (\text{II})$$
- 15 where
- A represents hydrogen or an alkyl group with 1-
3 C atoms, and where, if there is more than
one A, the individual A groups may be the
same or different,
- 20 R either represents an aliphatic group,
optionally branched, with 1-20 C atoms, which
may also contain a cyclohexyl group and
optionally in the carbon chain also one or
more O and/or S atoms, which group may also
25 be substituted with a functional group chosen
from either a hydroxyl group or an amino
group, optionally substituted with one or two
alkyl groups with 1-3 C atoms,
or represents a polyethylene glycol or a
30 polypropylene glycol with an average chain
length of 2 to 10 glycol units, optionally
with an aliphatic group with 1-5 C atoms

attached to the chain's free hydroxyl group,
and

R' either is a residual group that corresponds
to an aliphatic group, optionally branched,
5 with 2-20 C atoms, which may also contain a
1,4-dimethylenecyclohexyl group,
or represents a polyethylene glycol or a
polypropylene glycol with an average chain
length of 2 to 10 glycol units, and

10 n is 1, 2, 3 or 4, and

where the unsaturated prepolymer has an acid
number of less than 10 mg of KOH per g, and
where the curing is effected with the aid of a
radical-forming system that is unstable in the
15 temperature range from -20°C to +110°C.

2. Curable resin compositions according to Claim 1,
characterised in that the vinyl ether monomer is
a mono- and/or divinyl ether monomer.

3. Curable resin compositions according to Claim 2,
20 characterised in that the vinyl ether monomer has
been chosen from the group comprising butanediol
divinyl ether, butyl vinyl ether, cyclohexanedi-
methanol divinyl ether, cyclohexanedimethanol
monovinyl ether, diethylene glycol divinyl ether,
25 ethylene glycol divinyl ether, 2-ethylhexyl
divinyl ether, ethyl vinyl ether, hexanediol
divinyl ether, hydroxybutyl vinyl ether, methyl
vinyl ether, triethylene glycol divinyl ether,
triethylene glycol methyl vinyl ether and
30 trimethylolpropane trivinyl ether.

4. Curable resin compositions according to Claim 3,
characterised in that the vinyl ether monomer is

hydroxybutyl vinyl ether or triethylene glycol divinylether.

5. Curable resin compositions according to any one of Claims 1-4, characterised in that the
5 unsaturated prepolymer is a (meth)acrylate-containing resin.
6. Curable resin compositions according to Claim 5, characterised in that the (meth)acrylate-containing resin is a vinyl ester urethane resin.
- 10 7. Curable resin compositions according to any one of Claims 1-6, characterised in that the amount of vinyl ether monomer is 0.5-50 wt.%, relative to the weight of the total resin composition.
8. Curable resin compositions according to Claim 7,
15 characterised in that the amount of vinyl ether monomer is 5-20 wt.%, relative to the weight of the total resin composition.
9. Process for the preparation of a curable resin composition based on an unsaturated prepolymer, a
20 vinyl ether monomer that can be cross-linked with it and one or more other monomers, characterised in that the resin composition is prepared by blending
- (1) an unsaturated prepolymer having an acid
25 number of less than 10 mg of KOH per g,
- (2) a vinyl ether monomer having a general structure according to formula (I) or (II):



or



where

A represents hydrogen or an alkyl group
with 1-3 C atoms, and where, if there
is more than one A, the individual A
groups may be the same or different,

R either represents an aliphatic group,
optionally branched, with 1-20 C atoms,
which may also contain a cyclohexyl
group and optionally in the carbon
chain also one or more O and/or S
atoms, which group may be substituted
with a functional group chosen from
either a hydroxyl group or an amino
group, optionally substituted with one
or two alkyl groups with 1-3 C atoms,
or represents a polyethylene glycol or a
polypropylene glycol with an average
chain length of 2 to 10 glycol units,
optionally with an aliphatic group with
1-5 C atoms attached to the chain's
free hydroxyl group

and

R' either is a residual group that
corresponds to an aliphatic group,
optionally branched, with 2-20 C atoms,
which may also contain a 1,4-
dimethylenecyclohexyl group, or
represents a polyethylene glycol or a
polypropylene glycol with an average
chain length of 2 to 10 glycol units

and

n is 1, 2, 3 or 4,

- (3) one or more other monomers
- (4) together with any fillers and/or additives that may be required,

after which the resin composition can be cured by adding a radical-forming system that is unstable in the temperature range from -20°C to $+110^{\circ}\text{C}$.

- 5
- 10. Use of curable resin compositions according to any one of Claims 1-8 or of curable resin compositions prepared according to Claim 9 for
- 10 the production of moulded parts or structural materials.
- 11. Use of resin compositions according to any one of Claims 1-8 or of resin compositions prepared according to Claim 9 in flooring, roofing or rock
- 15 bolts.